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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/654,627	09/05/2000	James Peterson	SCHW-600	7348

28584 7590 10/13/2004  
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EXAMINER

COLBERT, ELLA

ART UNIT PAPER NUMBER

3624

DATE MAILED: 10/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/654,627

Applicant(s)

PETERSON ET AL.

Examiner

Ella Colbert

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– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 06 July 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 20 and 27-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 20 and 27-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. Claims 20 and 27-30 are pending. Claims 27-30 have been added in this communication filed 07/06/04 entered as Response to Office Action mailed April 5, 2004.

#### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 28 and 30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 28 reads "wherein when an optimal solution is found using the first subroutine, the third subroutine operates to generate a first solution by performing a first optimization which uses a first set of constraints to account for minimum investment values, and ....". This claim limitation is very unclear, confusing, and vague. First, the "first routine" is used then the claim limitation jumps to "the third subroutine" operating to "generate a first solution". Where does the "second solution" and "second optimization" come from since there is nothing mentioned about a "second optimization" and "second solution"? How is this arrived at in the claimed invention? Claim 30 reads "wherein the third optimization routine provides performing a second optimization where for a nonzero weight investment which has a weight which is less than a minimum investment amount, and upper bound for the nonzero weight investment is clamped to zero". This claim limitation is very unclear, confusing, and vague as written. The claim limitations of claims 28 and 30 are difficult to follow and to

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determine what Applicant is really saying and trying to claim. Clarification and correction in the claim language is respectfully requested.

The claims 20 and 27-30 appear to be recitation claims making the claims difficult to understand.

Claim 20 recites the limitation "iterative non-linear optimization routine" and "flat function problem" in lines 11 -13. There is insufficient antecedent basis for this limitation in the claim. "Iterative non-linear optimization routine" and "flat function problem" have not been mentioned in the claim until lines 11-13 and have not been mentioned thereafter. It is uncertain what is performing the "optimization" to arrive at the "iterative non-linear optimization routine" and the "flat function problem".

Clarification and correction in the claim language is respectfully requested.

**Applicant is respectfully requested to view the claim format of the references in the rejection and the cited prior art references for the preferred claim format.**

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 20 and 27-30 rejected under 35 U.S.C. 103(a) as being unpatentable over (US 5,852,811) Atkins in view of (US 5,918,217) Maggioncalda et al, hereafter Maggioncalda.

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Claim 20. Atkins teaches, In a computer system a method for characterizing an investment portfolio, comprising the steps of: inputting data for taxable investments; inputting data for non-taxable investments (col. 7, lines 12-31 and table 1); inputting investor profile information (col. 7, lines 22-31 and table 2); providing a processor programmed to perform an optimization which includes the data for the taxable investments, the data for the non-taxable investments and the investor profile information and which takes into account capital gains or losses on taxable investments which would be sold (col. 7, line 32- col. 9, line 32); and outputting an investment recommendation (col. 7, lines 12-30 and col. 24, lines 59-63).

Atkins failed to teach, wherein the optimization comprises performing an iterative non-linear optimization routine, and the optimization routine comprises a first subroutine of attempting to resolve a flat function problem by running the routine with different sets of initial values, and the optimization routine further includes a second subroutine;

wherein when the flat function does not optimize with any of the sets of initial values used in an initial step, the second subroutine is utilized, wherein the second subroutine includes: taking a solution for a best case; and re-running the optimization routine including only those investments with nonzero weights; and wherein when an optimal solution is found using the first subroutine, performing a third subroutine of re-running the optimization routine to account for minimum investment values; and wherein when an optimal solution is found using the second subroutine, performing the third subroutine of re-running the optimization routine to account for minimum investment values. Maggioncalda teaches, wherein the optimization comprises performing an

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iterative non-linear optimization routine, and the optimization routine comprises a first subroutine of attempting to resolve a flat function problem by running the routine with different sets of initial values, and the optimization routine further includes a second subroutine (col. 9, lines 29-40, col. 10, line 31- col. 12, line 21 and lines 26-65 and col. 16, lines 62-63); wherein when the flat function does not optimize with any of the sets of initial values used in an initial step, the second subroutine is utilized, wherein the second subroutine includes: taking a solution for a best case; and re-running the optimization routine including only those investments with nonzero weights (col. 16, lines 13-63); and wherein when an optimal solution is found using the first subroutine, performing a third subroutine of re-running the optimization routine to account for minimum investment values; and wherein when an optimal solution is found using the second subroutine, performing the third subroutine of re-running the optimization routine to account for minimum investment values (col. 17, lines 3-33 and line 57 –col. 18, line 25). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the optimization comprise performing an iterative non-linear optimization routine, and the optimization routine comprises a first subroutine of attempting to resolve a flat function problem by running the routine with different sets of initial values, and the optimization routine further includes a second subroutine; wherein when the flat function does not optimize with any of the sets of initial values used in an initial step, the second subroutine is utilized, wherein the second subroutine includes: taking a solution for a best case; and re-running the optimization routine including only those investments with nonzero weights; and wherein when an optimal solution is found

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using the first subroutine, performing a third subroutine of re-running the optimization routine to account for minimum investment values; and wherein when an optimal solution is found using the second subroutine, performing the third subroutine of re-running the optimization routine to account for minimum investment values and to modify in Atkins in view of Atkins payment of taxes and after-tax income on investments, accounts model, and portfolio optimization tools and because such modification would allow Atkins to incorporate problem solving methodologies to offer full interactive explanatory capabilities that clients can understand.

Claim 27. Atkins failed to teach, The method of claim 20, further comprising providing the first subroutine with three sets of initial values which are run by the first subroutine. Maggioncalda teaches, providing the first subroutine with three sets of initial values which are run by the first subroutine (col. 1, lines 49-59 and col. 2, lines 33-53). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the first subroutine with three sets of initial values which are run by the first subroutine and to modify in Atkins because such a modification would allow Atkins to increase the investment returns until a desired portfolio value is achieved.

Claim 28. Atkins failed to teach, The method of claim 20, wherein when an optimal solution is found using the first subroutine, the third subroutine operates to generate a first solution by performing a first optimization which uses a first set of constraints to account for minimum investment values, and the third subroutine operates to generate a second solution by performing a second optimization which uses

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a second set of constraints to account for minimum investment values. Maggioncalda teaches, wherein when an optimal solution is found using the first subroutine, the third subroutine operates to generate a first solution by performing a first optimization which uses a first set of constraints to account for minimum investment values, and the third subroutine operates to generate a second solution by performing a second optimization which uses a second set of constraints to account for minimum investment values (col. 7, lines 49-59 and col. 8, lines 23-41). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have when an optimal solution is found using the first subroutine, the third subroutine operates to generate a first solution by performing a first optimization which uses a first set of constraints to account for minimum investment values, and the third subroutine operates to generate a second solution by performing a second optimization which uses a second set of constraints to account for minimum investment values and to modify in Atkins because such a modification would allow Atkins to have a portfolio optimization module that may determine one or more optimal portfolios based on input provided to a financial advisory system via portfolio optimization performed in any manner known in the art.

Claim 29. Atkins teaches, The method of claim 28, further comprising selecting between the first solution and the second solution, and wherein the output investment recommendation is based on the selected one of the first solution and the second solution (col. 5, lines 22-48).

Claim 30. Atkins teaches, The method of claim 20, wherein when an optimal solution is found using the first subroutine, the third optimization routine provides for



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performing a first optimization where for each nonzero weight investment of a plurality of nonzero weight investments, a lower bound is set which corresponds to a respective investment amount minimum for each nonzero weight investment, and wherein the performing the first optimization provides a first solution; wherein the third optimization routine provides performing a second optimization where for a nonzero weight investment which has a weight which is less than a minimum investment amount, an upper bound for the nonzero weight investment is clamped to zero, and wherein performing the second optimization provides a second solution; and the third optimization routine includes selecting between the first solution and the second solution, and the output investment recommendation is based on the selected one of the first solution and the second solution (col. 34, line 62-col. 35, line 49, col. 36, line 39- col. 37, line 39, and col. 37, line 50- col. 38, line 14).

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure. **Applicant is respectfully requested to review the cited references prior to responding to this Office action.**

Scott et al (US 6,292,787) disclosed a portfolio optimization framework (see col. 7, line 48 –col. 8, line 55).

Jones et al (US 6,021,397) disclosed optimized portfolio allocations.

Michaud et al (US 6,003,018) disclosed portfolio optimization and assignment of risk to a portfolio using mathematical algorithms.

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Rebane (US 6,078,904) disclosed optimally allocating investment assets in a portfolio.

Melnikoff (US 5,784,696) disclosed evaluating investment risks in portfolios.

Young et al (US 6,393,409) disclosed optimizing portfolios with respect to a known objective.

Jones et al (WO 99/28845) disclosed financial products being generated and used to produce optimized portfolios.

### **Inquiries**

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ella Colbert whose telephone number is 703-308-7064. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vincent Millin can be reached on 703-308-1038. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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A handwritten signature in black ink, appearing to read 'E. Colbert', with a long horizontal flourish extending to the right.

E. Colbert

October 3, 2004